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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,269	10/04/2006	Yusuke Konagai	YAMA-0133	9215

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EXAMINER	
MONIKANG, GEORGE C	

ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
03/09/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@rkmlegalgroup.com

Office Action Summary	Application No.	Applicant(s)	
	10/585,269	KONAGAI, YUSUKE	
	Examiner	Art Unit	
	GEORGE C. MONIKANG	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 10/585,269.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 12/8/2009, with respect to the rejection(s) of claim(s) 1-8 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Asada et al, US Patent Pub. 20020191807 A1.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asada et al, US Patent Pub. 20020191807 A1, in view of Hatae, US Patent 5675655, and further in view of Official notice.

4. Re Claim 3, Asada et al discloses an audio signal supply apparatus, for a speaker unit comprising a plurality of loudspeaker array units (*Asada et al, fig. 30: 37a-37c; fig. 32: 37a-37e*), comprising: a branching unit that branches an input audio signal into two or more signals (*Asada et al, fig. 30*); a plurality filters with coefficients corresponding to each speaker unit, the filter coefficients being determined in accordance with the directivity pattern generated in the control (*Asada et al, fig. 30: 86a-86c: paras 0195-0196*); a delay unit that provides a first delay for one of the branched audio signals and supplies first delay processed signals to each of the loudspeakers of array speaker unit (*Asada et al, fig. 30: 86a-86c; fig. 32: 103a1-103a4; 103b1-103b4: paras 0195-0196: each delay is adjusted to determine a sound pattern direction*); a second delay unit that provides a second delay for another of the branched audio signals and supplies second delay processed signals to each of the loudspeakers of array speaker unit (*Asada et al, fig. 30: 86a-86c; fig. 32: 103a1-103a4; 103b1-103b4: paras 0195-0196: each delay is adjusted to determine a sound pattern direction: each delay is adjusted to determine a sound pattern direction, and since there are a plurality of delays, there will be a plurality of sound pattern directions*); a directivity control unit that generates the first directivity control information and the second directivity control information so that a directional characteristic of the array speaker unit obtained by the first delay differs from the directional characteristic of the array speaker unit obtained by the second delay, and supplies the generated information respectively to each of the first delay unit and the second delay unit (*Asada et al, fig. 30: 86a-86c; fig. 32: 103a1-103a4; 103b1-103b4: paras 0195-0196: each delay is adjusted to determine a sound*

pattern direction: each delay is adjusted to determine a sound pattern direction, and since there are a plurality of delays, there will be a plurality of sound pattern directions); an adding unit that adds the first and second delay processed signals applied to each of the respective loudspeakers (*Asada et al, fig. 32; para 0204*). Asada et al fail to disclose one characteristic of the speaker array having narrow directivity and another having wide directivity. Hatae discloses the ability to provide a wide directivity controlled output and a narrow directivity controlled output (*Hatae, col. 4, lines 50-54*). It would have been obvious to set the delays of the filters in Asada et al to determine the directivity of any of the given speakers (*Asada et al, fig. 30: 37a-37c; fig. 32: 37a-37e*) to be wide directivity, narrow directivity respectively as taught in Hatae (*Hatae, col. 4, lines 50-54*) or any combination of wide, narrow directivity as seen fit by Asada et al for the purpose of providing sounds to a multitude array of listeners with different hearing capabilities within the same space.

5. The combined teachings of Asada et al and Hatae do not disclose the filter coefficients corresponding to the speaker units being generated by digital FIR filters. However, official notice is taken that both the concepts and advantages of using a digital FIR filter are well known in the art. Thus it would have been obvious to modify the filters of Asada et al (*Asada et al, fig. 30: 86a-86c; fig. 32: 103a1-103a4; 103b1-103b4; paras 0195-0196;*) with digital FIR filters since FIR filters are inherently more stable and require no feedback.

Re Claim 1, the combined teachings of Asada et al, Hatae and Official notice disclose the audio signal supply apparatus according to claim 3, further comprising: a

weighting unit that weights each of the delay processed audio signals from the first and second delay units to be supplied to the loudspeaker units accordance with provided gain control (*Asada et al, fig. 30: 87a-87c; fig. 32: 105a-105e*); and a storage unit that stores the first control information (*Asada et al, para 0288: the coefficients of filters along with the delays which impact the directivity are stored in a CPU*), which sets the directional characteristic of the array speaker unit as a narrow directivity (*Asada et al, fig. 30: 86a-86c; fig. 32: 103a1-103a4; 103b1-103b4: paras 0195-0196: the coefficients of filters along with the delays which impact the directivity are stored in a CPU and could be narrow directivity as in Hatae* (*Hatae, col. 4, lines 50-54*), and the second control information, which sets the directional characteristic of the array speaker unit as a wide directivity (*Asada et al, fig. 30: 86a-86c; fig. 32: 103a1-103a4; 103b1-103b4: paras 0195-0196: the coefficients of filters along with the delays which impact the directivity are stored in a CPU and could be wide directivity as in Hatae* (*Hatae, col. 4, lines 50-54*), wherein the directivity control unit instruction, also the gain control information and supplies the gain control information to the weighting unit (*Asada et al, fig. 30: 87a-87c; fig. 32: 105a-105e: the amplifiers/weight units elements that are each supplied to each of the speakers in the array*).

Re Claim 2, the combined teachings of Asada et al, Hatae and Official notice disclose the audio signal supply apparatus according to claim 1, wherein the amount of delays obtained by the second is 0 or an equal amount (*Hatae, col. 6, lines 53-60; col. 6, line 65 through col. 7, line 4*) for the purpose of minimizing the ambient noise that can affect the directivity of the speakers.

Claim 4 has been analyzed and rejected according to claim 3.

Claim 5 has been analyzed and rejected according to claim 2.

1. Re Claim 6, the combined teachings of Asada et al, Hatae and Official notice disclose the audio signal apparatus of claim 3; a frequency property correction unit that corrects frequency property of audio signals (*Asada et al, paras 0195-0197: the sound is optimized for various sample frequencies*).

Claim 7 has been analyzed and rejected according to claim 1.

Re Claim 8, the combined teachings of Asada et al, Hatae and Official notice disclose the audio signal supply apparatus according to claim 4, wherein the directional characteristic of the array speaker unit obtained through the first delay overlap with the directional characteristic of the array speaker unit obtained through the second delay (*Hatae, fig. 5; fig. 7: 202-205; col. 7, lines 29-37*) for the purpose of creating a dynamic system.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE C. MONIKANG whose telephone number is (571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/ 2/22/2010
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614